

Claims

What is claimed is:

1. A method of agglomerating particulate matter in exhaust gas from an engine, comprising:
dividing a flow of exhaust gas from the engine into at least two streams of exhaust gas, each of the two streams of exhaust gas including particulate matter;
altering at least one characteristic of the particulate matter in at least one of the two streams of exhaust gas; and
combining the two streams of exhaust gas such that the particulate matter agglomerates into larger particles.
2. The method of claim 1, further including passing the combined stream of exhaust gas through a particulate matter trap.
3. The method of claim 1, further including altering at least one characteristic of the other of the two streams of exhaust gas.
4. The method of claim 1, wherein the characteristic being altered is an electrical property of the particulate matter.
5. The method of claim 1, wherein the characteristic being altered is the temperature of the particulate matter.
6. A method of agglomerating particulate matter in exhaust gas from an engine, comprising:
dividing a flow of exhaust gas from the engine into at least two streams of exhaust gas, each exhaust gas stream including particulate matter;

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positively charging the particulate matter in one of the at least two streams of exhaust gas;

negatively charging the particulate matter in the other of the at least two streams of exhaust gas; and

combining the stream of exhaust gas having the positively charged particulate matter with the stream of exhaust gas having the negatively charged particulate matter.

7. The method of claim 6, further including passing the combined stream of exhaust gas through a particulate matter trap.

8. The method of claim 6, wherein the particulate matter in said one stream of exhaust gas is positively charged by applying a positive voltage thereto.

9. The method of claim 8, wherein the particulate matter in said other stream of exhaust gas is negatively charged by applying a negative voltage thereto.

10. An apparatus for agglomerating particulate matter in an exhaust flow from an engine, comprising:

a first exhaust conduit configured to conduct a first stream of exhaust gas having particulate matter;

a second exhaust conduit configured to conduct a second stream of exhaust gas having particulate matter;

a charging device operable to selectively impart a positive charge to the particulate matter in the first exhaust conduit and to impart a negative charge to the particulate matter in the second exhaust conduit; and

a junction connecting the first and second exhaust conduits to form a combined exhaust gas passage.

11. The apparatus of claim 10, further including a particulate matter trap disposed in the combined exhaust gas passage.

12. The apparatus of claim 10, wherein the charging device includes a positive electrode disposed in the first exhaust conduit and a negative electrode disposed in the second exhaust conduit.

13. The apparatus of claim 12, wherein the positive electrode is configured to apply a positive voltage of at least 8 kV and the negative electrode is configured to apply a negative voltage of at least 7.5 kV.

14. The apparatus of claim 12, further including a plurality of positive electrodes disposed in the first exhaust conduit and a plurality of negative electrodes disposed in the second exhaust conduit.

15. The apparatus of claim 10, further including a first ground disposed in the first exhaust conduit and a second ground disposed in the second exhaust conduit.

16. The apparatus of claim 15, wherein the first ground is a copper screen disposed around the inner perimeter of the first exhaust conduit and the second ground is a copper screen disposed around the inner perimeter of the second exhaust conduit.

17. The apparatus of claim 10, further including a ground disposed at the junction.

18. The apparatus of claim 17, wherein the ground is a copper screen disposed around the inner perimeter of the combined exhaust gas passage.